



## PIER Energy System Integration Program Area

### Overhead Transmission: Overhead Transmission Line Reference Manual - Program 35

**Contract #:** 500-00-023 **Project #:** 46

**Contractor:** Electric Power Research Institute (EPRI)

**Project Amount:** \$21,538

**Match Amount:** \$247,683

**Contractor Project Manager:** Raymond Lings (650) 855-2177

**Commission Contract Manager:** Jamie Patterson (916) 657-4819

**Status:** Completed

#### Project Description:

The purpose of this project is to revise EPRI's "Red Book"—the *Transmission Line Reference Book: 345 kV and Above*. The revision will update the handbook to incorporate the latest operating experiences and technologies, and to ensure that the handbook reflects both domestic and international operating practices and work environments. The revision will add new chapters as appropriate.

The *Transmission Line Reference Book: 345 kV and Above* is recognized worldwide as the leading handbook—the industry standard—on transmission line design. The printed book has a red cover, and has become widely known as the "Red Book" in the industry. The first edition was published in 1975, the second edition in 1982, and the second revised edition in 1987. It has not been revised since then.

#### This project supports the PIER Program objective of:

- Improving the reliability/quality of California's electricity through updating of the premier guide to transmission line design.

#### Proposed Outcome:

1. Rewrite and update the book as necessary to incorporate the latest operating experiences and technologies, and to ensure that the handbook reflects both domestic and international operating practices and work environments.

#### Actual Outcomes:

1. The actual re-write of chapters has started. 40% of the book was re-written in 2002 and the rest will be rewritten in 2003.
2. In August 2002, the various team members met to review progress and to debate face-to-face the structure of various chapters. An advanced draft of the chapter on Electromagnetics was presented, along with a number of "applets"—small software routines designed to demonstrate concepts within the book. Chapter outlines covering Lightning, Live Working, Radio Noise, Audible Noise, Corona Fundamentals and Corona Loss were presented and debated.
3. The editorial panel was formed and met in August.
4. A report was published entitled *Updating the EPRI Transmission Line Reference Book (Red Book)—2002 Progress Report* (1001762), which summarizes progress to date.
5. Additional contracts will be placed for work to start in early January 2003.
6. In January 2003, a review meeting will be held. At that meeting, draft chapters will be presented on Lightning Performance, Corona Phenomena, Radio Noise, and Audible Noise.
7. An Interim Report was published in late 2002.

**Project Status:**

The project has been completed.